AMENDMENT TO THE SPECIFICATION

All changes to the paragraphs in the specification are in reference to the clean copy of the amended specification submitted herein.

Please replace the first sentence of the amended specification with the following:

The present application claims priority of European patent application Serial No. 02028205.9, filed December 14, 2002~~, the content of which is hereby incorporated by reference in its entirety~~.

In the clean copy of the amended specification, please amend the paragraph commencing on page 3 of the amended specification and ending on page 6 of the clean copy of the amended specification as follows:

There are three indices for measuring body water content: total body water (TBW), intracellular water (ICW) and extracellular water (ECW). TBW equals the sum of ICW and ECW, and these three indices are significant to assess the physical attributes and the balance status of intracellular and extracellular liquid. There are also corresponding methods for measuring body water. The method often used is drug~~gery~~ dilution method. For example, to take certain doses of antibilin or D_2O, after these medical substances disperse uniformly to global body, to extract some sample of blood and urine for testing. Also there is a method called multiple-factor isotope dilution, which can measure multiple body contents including water content from microcosmic aspect. None of these methods presented above can meet the demand of fast and integrated monitoring of body weight, fat and water content. Especially some methods of medical substance dilution, can only be done in hospitals, have long time period, cost much and can not be done as often as needed.

The method of bioelectrical impedance analysis (BIA) is considered to be the simplest method for measuring human body composition (such as fat content). This method is based upon the principle that body tissue conductivity of bio electricity in different areas of the body

stimulated by outside electricity is different. For example, the conductivity of muscle is high and then the impedance is small because of its high rate of water content, while the conductivity of fat tissue, bone tissue and lung tissue filled with air is very low and the impedance is relatively great. So body composition can be estimated according to tissue's impedance. Up to now, though those open patents on measuring body composition based on bioelectrical impedance analysis (BIA) adopt different circuits, arithmetic, apparatus structures and different output methods, they have three common characteristic in nature~~,~~. ~~t~~The first is to obtain bioelectric impedance by measuring voltage or voltage difference then transforming to digital value through A/D, the second is to use at least more than three electrodes (groups), among which two electrodes is certain to apply high frequency small current to human body in order to stimulate bio electricity and the other two electrodes collect stimulated voltage signal indicating bioelectrical impedance, if unite two of four electrodes to be used as reference electrodes, then there are 3 electrodes, the third is that the different frequency signals applied to human body must be signals with determined frequencies. As disclosed in U.S. Pat. No.6, 151, 523, bioelectrical impedance can be measured by placing electrodes at a person's toes and heels, and by inputting the weight and height of the subject, percent body fat can also be estimated.~~But the shortcoming of this patent is more electrodes and no body water measuring. European Patent No.EP1147740A1 shown a living body variable measuring device. The measuring method of the patent is feeding a high frequency current to body and then measuring the voltage or voltage difference for estimating bioelectrical impedance. One of mode of signal transmission of this patent is that the weight scale-like body and box-like display device are provided with wireless communication means for signal communication between weight scale-like body and box-like display device, but no technical detail is indicated. There are 2 shortcomings in this patent. Firstly, there are 4 electrodes in the device, 2 electrodes for feeding a high frequency current to body and 2 electrodes for measuring the voltage, so as to forming feeding current circuit and voltage measuring circuit respectively, which are complicated. Secondly, the voltage measuring circuit needs an A/D converter for converting analog signals from the voltage measuring circuit to digital signals. European patent No.EP1080686A1 shown another bioelectrical impedance~~

~~measuring method and body composition measuring apparatus, in which a first, second and third bioelectrical impedance values are determined by a measurement using the alternating current having a first, second and third frequency respectively. Then, a vector impedance locus is derived from only the derived first, second and third bioelectrical impedance values to determine the bioelectrical impedance values at 0 frequency and at infinite frequency. The shortcomings of this patent are also complicated measuring circuit and the A/D converter for converting analog signals from the voltage measuring circuit to digital signals. The Patent No.WO02/080770A1 shown a method for measuring of edema. By the method an electromagnetic probe (20-500MHZ) is placed on the skin, and the capacitance of the probe is proportional to the dielectric constant of the skin and subcutaneous fat, which is proportional to the water content of the skin. The shortcomings of this patent are that for the measurement the probe is secured on the skin by an attachment, such as strap-like attachment, which is discommodious. The Patent No.WO01/036952A1 shown a method for measuring skin surface hydration and device for applying the method, in which method a electromagnetic probe is placed on the skin for measuring the capacitance of the skin, characterized in that a wave signal is transmitted into the probe, the capacitance of the probe is measured by comparing the phases of the direct and reflected wave.~~ The shortcomings of this patent are that the structure of the electromagnetic probe is coaxial and complicated. The shortcomings of the above methods are: first, the methods have limitation if body fat and water content are determined based on bioelectrical impedance alone, second, because of the great diversity of human bodies, if only one or multiple determined frequencies are applied to human body, the results can not indicate body status accurately, and third, there are large errors in ~~those~~such low-cost apparatus when ~~use~~using voltage measurement to determine body impedance.

Please amend the paragraph of the clean copy of the substitute specification starting on page 6, after the heading OBJECTS OF THE INVENTION as follows:

The present invention aims to solve those questions above~~,~~. ~~t~~The object is to provide a method for measuring dielectric constant of body tissues under the skin by using capacitance

sensor contacting body skin and based on the method of frequency digital sampling.

Please amend the paragraph starting on page 7, line 21 of the substitute specification and ending at the bottom of page 7 as follows:

Because the dielectric constant of body tissues under the skin is related directly to the fat content and water content of body tissues, the present invention regards the dielectric constant of body tissues under the skin as a measuring parameter for evaluating body composition. The present invention's method and principle for measuring dielectric constant of body tissues under the skin ~~is~~are: when a testee stands ~~with~~ barefoot on the measuring platform, ~~his~~the soles of the testee two feet contact two capacitance grid sensors, and the oscillator circuit connected with the capacitance grid sensors generates oscillating frequency signals related to the dielectric constant of body tissues under the skin~~,~~. ~~t~~The signals are sampled and then the dielectric constant of the body tissues under the skin can be obtained.

Please amend the paragraph starting page 13, line 5 of the substitute specification and ending on page 14, 7 lines up from the bottom as follows:

Referring now to Fig3A, it shows the system configuration of integrative apparatus shown in Fig2A. Electrode plates **8**, **9** and capacitance grid sensors **10**, **11** are connected with the interfaces of positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance, and positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance is connected with two interfaces of microprocessor (MCU) system **15** of the integrative apparatus. One of the two interfaces is a signal collection interface of MCU system **15** of the integrative apparatus, the other is a control interface of MCU system **15** of the integrative apparatus used to send switch instruction to positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance in order to switch undetermined multiple frequencies and measuring signals of the dielectric constant of body tissues under the skin. The signal wires of weighing sensor **19** are connected with weighing signal process circuit **18**, ~~in~~

~~which the signal from weighing sensor 19 is converted into frequency signal,~~ and the processed ~~frequency~~ signal is applied to one interface of the MCU system **15** of the integrative apparatus as a frequency signal through weighing signal processing circuit **18**. Display **16** is connected with the output of MCU system **15** of the integrative apparatus and is used to show the input data and the measuring result. Keyboard **17** is connected with the I/O interface of MCU system **15** of the integrative apparatus and is used to input data to MCU system **15** of the integrative apparatus.

Referring now to Fig3B, it shows the system configuration of integrative apparatus shown in Fig2B.The two groups of electrode **12**, **13** composed of electrode plates connected with one another by wires and being able to contact human's soles, and capacitance grid sensor **10**, **11** are connected with the interfaces of positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance, and positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance is connected with two interfaces of MCU system **15** of the integrative apparatus. One of the interfaces is the signal collection interface of MCU **15** system of the integrative apparatus and the other is a control interface of the MCU system **15** of the integrative apparatus used to send switch instruction to positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance in order to switch undetermined multiple frequencies and the measuring signal of body dielectric constant of tissues under the skin. The signal wires of weighing sensor **19** are connected with weighing signal process circuit **18**, ~~in which the signal from weighing sensor 19 is converted into frequency signal,~~ and the processed ~~frequency~~ signal is applied to one interface of MCU system **15** of the integrative apparatus as a frequency signal through weighing signal processing circuit **18**. Display **16** is connected with the output of MCU system **15** of the integrative apparatus and is used to show the input data and the measuring results. Keyboard **17** is connected with the I/O interface of MCU **15** and is used to input data to MCU **15**.

Please amend the two paragraphs commencing on page 15 of the substitute specification in the middle of the page and ending on page 17 of the substitute specification at line 4 as follows:

Referring now to Fig5A, it shows the system configuration of measuring apparatus shown in Fig4A. Electrodes **8**, **9** and capacitance grid sensor **10**, **11** are connected with the interfaces of positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance, and positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance is connected with two interfaces of microprocessor MCU system **20** of measuring apparatus. One of the two interfaces is a signal collection interface of MCU system **20** of measuring apparatus, the other is a control interface of MCU system **20** of measuring apparatus used to send switch instruction to positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance in order to switch undetermined multiple frequencies and measuring signal of dielectric constant of body tissues under the skin. The signal wires of weighing sensor **19** are connected with weighing signal process circuit **18**, ~~in which the signal from weighing sensor 19 is converted into frquency signal,~~ and the processed ~~frequency~~ signal is applied to one interface of MCU system **20** of the measuring apparatus <u>as a frequency signal</u> through weighing signal processing circuit 18. The determined data by measurement are emitted or received by infrared ray-emitting- receiving circuit **21**.

Referring to Fig5B, it shows the system configuration of measuring apparatus shown in Fig4B.Two groups of electrodes **12**, **13**, which are composed of electrode plates connected with one another by wires and can be in contact with human's soles, and capacitance grid sensors **10**, **11** are connected with the interfaces of positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance, and positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance is connected with two interfaces of MCU **20** system of the measuring apparatus. One of the interfaces is the signal collection interface of MCU **20** system of the measuring apparatus and the other is a control interface of MCU system **20** of the measuring apparatus used to send switch instruction to positive feedback RC oscillator circuit **14** for measuring the dielectric constant of body tissues under the skin and body impedance in order to switch undetermined multiple frequencies and the measuring signal of dielectric constant of body tissues

under the skin. The signal wires of weighing sensor **19** are connected with weighing signal process circuit **18**, ~~in which the signal from weighing sensor 19 is converted into frequency signal~~ and the processed ~~frequency~~ signal is applied to one interface of MCU system **20** of the measuring apparatus as a frequency signal through weighing signal processing circuit **18**. The determined data by measurement are emitted or received by infrared ray-emitting- receiving circuit **21**.

Please change the Abstract paragraph as follows:

A method for measuring dielectric constant of body endermic tissues and body impedance based on the method of frequency digital sampling and for evaluating body composition, inputting through the I/O interface of a microprocessor the measured ~~bogy~~body weight frequency signals, oscillating frequency signals related to dielectric constant of body endermic tissues and body impedance signals corresponding to non-fixed different frequencies, calculating through the software of the microprocessor the body fat content, total body water, ratio between intracellular water and total body water and displaying the body weight, body fat content ,total body water and ratio between intracellular water and total body water on the display~~;~~.

— A body composition monitor based on the above method~~-unit~~, which includes ~~comprises~~ a weighing sensor, ~~and~~a weighing signal processing circuit, and a display unit.